

REMARKS

Favorable reconsideration of this application is requested in view of the foregoing amendments and the following remarks. Claims 20-47 are pending in the application. Claims 1-19 were canceled without prejudice or disclaimer.

The claims are amended in order to more clearly define the invention, support for which is found in the figures and related parts of the specification. Support for the recitation in independent claims 1, 35, 36 and 37 of "located either on an insulating substrate or a (semi)conductive substrate that has been coated with an insulating layer" is found at line 26, page 7 of the specification as originally filed. Support for the recitation in dependent claims 28, 39, 42 and 45 that the electrochemical passivator is coupled to at least a portion of a sidewall surface is found at lines 20 and 23 of page 6; lines 8, 14 and 17 of page 8; and line 5 of page 15 of the specification and also in many of the figures as originally filed. Support for the recitation in dependent claim 34 that the parallel lead and the at least one electrically conductive interconnect define a plane that is substantially perpendicular to the VACNF is found in figure 6C as originally filed.

Claims 20 and 22-47 were rejected under 35 USC 102(b) as anticipated by Simpson (US 6692324). With regard to the claims as presently amended, the disclosure of the Simpson reference is not sufficient to support this rejection. Specifically, all of independent claims 1 and 35-37 are amended to require an electrically conductive interconnect located either on an insulating substrate or a (semi)conductive substrate that has been coated with an insulating layer.

All of the substrates of the Simpson reference are explicitly described by the Simpson reference as n-doped silicon. N-doped silicon is conductive. All of the buffer layers of the Simpson reference are explicitly described by the Simpson reference as tungsten-titanium alloy.

Tungsten-titanium alloys are conductive. Therefore, the Simpson reference simply does not disclose or suggest the presently claimed electrically conductive interconnect located either on an insulating substrate or a (semi)conductive substrate that has been coated with an insulating layer.

With regard to dependent claim 25, Simpson discloses n-doped silicon, but does not disclose quartz, sapphire or magnesia.

With regard to dependent claim 26, Simpson does not disclose the substrate being optically transmissive. Simpson specifies the substrate as being n-doped silicon, which is not optically transmissive at visually perceived wavelengths.

With regard to all of dependent claims 28-30; 39-41; 42-44; and 45-47, as presently amended, these claims require that the electrochemical passivator is coupled to at least a portion of a sidewall surface of the nanostructures. The Simpson reference teaches first depositing a passivator and then second VACNF growth following passivator deposition within a well formed in the di-electric layer. These means that the passivator of the Simpson reference is always coupled to only one end surface of the Simpson VACNF. The electrochemical passivator (330) of the Simpson reference is never coupled to any sidewall surface of the vertically aligned carbon nanofibers in Simpson.

With regard to claim 34, as presently amended, this claim requires that the parallel lead and the at least one electrically conductive interconnect define a plane that is substantially perpendicular to the VACNF. In contrast, the Simpson reference describes a parallel lead in a plane above the substrate plane.

Accordingly, withdrawal of this rejection is respectfully requested.

Other than as explicitly set forth above, this reply does not include acquiescence to statements in the Office Action. In view of the above, all the claims are considered patentable and allowance of all the claims is respectfully requested. The Examiner is invited to telephone

the undersigned (at direct line 512-394-0118) for prompt action in the event any issues remain that prevent the allowance of any pending claims.

No extension fee is due for filing this Reply because it is being filed within the shortened statutory period for response as set in the Office Action dated August 9, 2004.

The Director of the U.S. Patent and Trademark Office is hereby authorized to charge any fees or credit any overpayments to Deposit Account No. 50-3204 of John Bruckner PC.

Respectfully submitted,


John Bruckner PC
Attorney(s) for Applicant(s)

John J. Bruckner
Reg. No. 35,816

Dated: October 29, 2004

5708 Back Bay Lane
Austin, TX 78739-1723
Tel. (512) 394-0118
Fax. (512) 394-0119

43. (Previously presented) The field emitting array of claim 42, wherein the electrochemical passivator includes a dielectric layer including at least one member selected from the group consisting of SiO_2 , Si_3N_4 and a polymer.

44. (Previously presented) The field emitting array of claim 42, wherein a tip of the at least one vertically aligned carbon nanofiber is not passivated.

45. (Currently amended) The kit of claim 37, further comprising an electrochemical passivator deposited on coupled to at least a portion of a sidewall surface of the at least one vertically aligned carbon nanofiber.

46. (Previously presented) The kit of claim 45, wherein the electrochemical passivator includes a dielectric layer including at least one member selected from the group consisting of SiO_2 , Si_3N_4 and a polymer.

47. (Previously presented) The kit of claim 45, wherein a tip of the at least one vertically aligned carbon nanofiber is not passivated.

48. (New) The biosensor of claim 35, wherein the at least one vertically aligned carbon nanofiber includes a plurality of fibers that are individually electrically addressable via the electrically conductive interconnect.

49. (New) The field emitting array of claim 36, wherein the at least one vertically aligned carbon nanofiber includes a plurality of fibers that are individually electrically addressable via the

electrically conductive interconnect.

50. (New) The kit of claim 37, wherein the at least one vertically aligned carbon nanofiber includes a plurality of fibers that are individually electrically addressable via the electrically conductive interconnect.

REMARKS

Favorable reconsideration of this application is requested in view of the foregoing amendments and the following remarks. Claims 20-50 are pending in the application. Claims 48-50 are newly presented. Claims 1-19 were previously canceled without prejudice or disclaimer.

The claims are amended in order to more clearly define the invention, support for which is found in the figures and related parts of the specification. Support for the recitation in independent claims 1, 35, 36 and 37 of "located either on an insulating substrate or a (semi)conductive substrate that has been coated with an insulating layer" is found at line 26, page 7 of the specification as originally filed. Support for the recitation in dependent claims 28, 39, 42 and 45 that the electrochemical passivator is deposited on the surface is found at lines 25 of page 9; line 27 of page 14; and line 6 of page 15 of the specification as originally filed. Support for the recitation in dependent claims 28, 39, 42 and 45 of sidewall surface is found at lines 20 and 23 of page 6; lines 8, 14 and 17 of page 8; and line 5 of page 15 of the specification as originally filed. Support for the recitation in dependent claim 34 that the parallel lead and the at least one electrically conductive interconnect define a plane that is substantially perpendicular to the VACNF is found in figure 6C as originally filed. Support for new claims 47-50 is found in claim 33 as originally filed.

Claims 20 and 22-47 were rejected under 35 USC 102(b) as anticipated by Simpson (US 6692324). With regard to the claims as presently amended, the disclosure of the Simpson reference is not sufficient to support this rejection. Specifically, all of independent claims 1 and 35-37 are amended to require an electrically conductive interconnect located either on an insulating substrate or a (semi)conductive substrate that has been coated with an insulating layer.

All of the substrates of the Simpson reference are explicitly described by the Simpson reference as n-doped silicon. N-doped silicon is conductive. All of the buffer layers of the Simpson reference are explicitly described by the Simpson reference as tungsten-titanium alloy. Tungsten-titanium alloys are conductive. Therefore, the Simpson reference simply does not disclose or suggest the presently claimed electrically conductive interconnect located either on an insulating substrate or a (semi)conductive substrate that has been coated with an insulating layer.

With regard to dependent claim 25, Simpson discloses n-doped silicon, but does not disclose quartz, sapphire or magnesia. Therefore, dependent claim 25 is considered to be separately patentable.

With regard to dependent claim 26, Simpson does not disclose the substrate being optically transmissive. Simpson specifies the substrate as being n-doped silicon, which is not optically transmissive at visually perceived wavelengths. Therefore, dependent claim 26 is considered to be separately patentable.

With regard to all of dependent claims 28-30; 39-41; 42-44; and 45-47, as presently amended, these claims as amended require that an electrochemical passivator is deposited on at least a portion of a sidewall surface of the VACNF. In stark contrast, the Simpson reference teaches i) depositing a dielectric layer 330, then ii) forming a well in the dielectric layer 330 all the way down to the conductive buffer 305 to expose the catalyst 320 and iii) thereafter growing the VACNF(s). Therefore, the dielectric layer 330 of the Simpson reference is never deposited onto any surface of the Simpson VACNFs, much less a sidewall surface of the VACNFs of Simpson, and is moreover never even in contact with the VACNFs of Simpson because of the intervening etch exposed conductive buffer 305 of Simpson.

With regard to claims 33 and 47-48, all these dependent claims require a plurality of fibers that are individually electrically addressable via the electrically conductive interconnect.

The Simpson reference does not disclose or suggest this limitation. In fact, the Simpson reference teaches away from these embodiments of the invention because the Simpson reference teaches a continuous conductive substrate, optionally with a continuous conductive buffer layer, thereby precluding individual addressability.

With regard to claim 34, as presently amended, this claim requires that the parallel lead and the at least one electrically conductive interconnect define a plane that is substantially perpendicular to the VACNF. In contrast, the Simpson reference describes a parallel lead in a plane above the substrate plane.

Accordingly, withdrawal of this rejection is respectfully requested.

Other than as explicitly set forth above, this reply does not include acquiescence to statements in the Office Action. In view of the above, all the claims are considered patentable and allowance of all the claims is respectfully requested. The Examiner is invited to telephone the undersigned (at direct line 512-394-0118) for prompt action in the event any issues remain that prevent the allowance of any pending claims.

No extension fee is due for filing this Reply because it is being filed within the shortened statutory period for response as set in the Office Action dated August 9, 2004.

The Director of the U.S. Patent and Trademark Office is hereby authorized to charge any fees or credit any overpayments to Deposit Account No. 50-3204 of John Bruckner PC.

Respectfully submitted,

John Bruckner PC
Attorney(s) for Applicant(s)

John J. Bruckner
Reg. No. 35,816

Dated: October 29, 2004

5708 Back Bay Lane
Austin, TX 78739-1723
Tel. (512) 394-0118
Fax. (512) 394-0119